EXHIBIT B

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Glendale, California 91203
Telephone: (818) 547-5000
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André E. Jardini (*Appearing Pro Hac Vice*)

Counsel for Plaintiffs William D. Pilgrim, et al.

UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

In re: MOTORS LIQUIDATION COMPANY, et al., fka General Motors Corp., et al. Debtors.	Chapter 11 Case No. 09-50026 (MG)

DECLARATION OF WILLIAM DANIEL PILGRIM IN SUPPORT OF REPLY TO MOTION OF GENERAL MOTORS LLC PURSUANT TO 11 U.S.C. §§ 105 AND 363 TO ENFORCE THE BANKRUPTCY COURT'S JULY 5, 2009 SALE ORDER AND INJUNCTION

1. I, William D. Pilgrim, declare as follows:

2. I am a plaintiff in the action entitled *William D. Pilgrim, etc., et al. v. General Motors LLC*, bearing United States District Court, Central District case number CV 15-8047-JFW (Ex). If called as witness I could and would testify as follows.

3. I purchased a Corvette Z06 (2008) on January 29, 2014 with 20,530 miles.

4. On or about January 15, 2015, at 27, 028 miles, the car demonstrated excessive valve train noise. I took my Z06 to American Heritage Performance. Kohle Heimlich from American Heritage performed a "wiggle test." The test showed that a majority of the valve guides were out of spec. The repairs cost $3,586.16.

5. The wiggle test was created and used by General Motors as a method to measure valve specs without having to remove the valve. A true and correct copy of the General Motors' Corvette Service Manual (2011) is attached as Exhibit 3.

6. As a member of the Corvette Forum, I saw a post from journalist Hib Halverson dated March 29, 2015, which reported a meeting of various engineers at General Motors that took place the week before the post. According to the forum post by Hib Halverson, General Motors acknowledged the valve issues but rejected the formerly General Motors utilized wiggle test. A true and correct copy of Hib Halverson's Corvette Forum post is attached as Exhibit 4.

7. On February 18, 2015, General Motors' Chief Engineer, Tadge Jeuchter responded to a question I had posted on the Corvette Forum regarding the LS7 engine failures that myself and other Z06 owners were experiencing. Tadge Jeuchter and Jordan Lee, General Motors' Small Block Chief Engineer, stated that the valve guide issue was limited to a short period of production. A true and correct copy of Tadge Jeuchter's Corvette Forum post on February 18, 2015 is attached as Exhibit 5.

8. On February 23, 2015, Tadge Jeuchter added another post on the Corvette Forum stating that General Motors' internal data source did not match the experience of

the Forum members. Tadge Jeuchter stated that General Motors would contact several shops and consult with them about the issue. A true and correct copy of Tadge Jeuchter's Corvette Forum post on February 23, 2015 is attached as Exhibit 6.

9. General Motors' Chevrolet Customer Service posted an LS7 Valve Guide Issue Summary on the Corvette Forum acknowledging that excessive valve train noise could result in engine failure. The summary claimed, however, that the issue was the result of a machining error done by General Motors' supplier. A true and correct copy of the Chevrolet Customer Service post is attached as Exhibit 7.

10. General Motors posted a Bulletin No: 13-06-01-001 to provide dealerships with guidelines to address concern over valve guide wear. The Bulletin is dated January 14, 2013. A true and correct copy of the General Motors Bulletin No: 13-06-01-001 is attached as Exhibit 8.

11. I have personally been issued a recall notice from General Motors for my Z06 Corvette to replace the low beam headlights on my Z06 Corvette. I believe that there has been at least one other recall issued by General Motors for the Z06 Corvettes.

12. Members of the Corvette Forum participated in a survey which showed that approximately 89% of the valve guides tested and reported to the forum are out of spec. A true and correct copy of the Corvette Forum survey is attached as Exhibit 9.

Executed on February 3rd, 2016, at Prescott Valley, Arizona.

I declare under penalty of perjury that the foregoing is true and correct.

William Daniel Pilgrim

Exhibit 3

Engine Mechanical Specifications (7.0L) (cont'd)

Application	Specification	
	Metric	English
Valve Seat – Angle	45 degrees	
Valve Seat – Runout	0.05 mm	0.002 in
Valve Seat – Width – Exhaust	1.7–2.0 mm	0.067–0.079 in
Valve Seat – Width – Intake	1.25–1.55 mm	0.049–0.061 in
Valves – Stem Diameter – Intake	7.958–7.9735 mm	0.313–0.314 in
Valves – Stem Diameter – Exhaust	7.956–7.976 mm	0.313–0.314 in
Valves – Stem-to-Guide Clearance – Production – Intake	0.028–0.063 mm	0.001–0.0024 in
Valves – Stem-to-Guide Clearance – Service – Intake	0.093 mm	0.0037 in
Valves – Stem-to-Guide Clearance – Production – Exhaust	0.025–0.066 mm	0.001–0.0026 in
Valves – Stem-to-Guide Clearance – Service – Exhaust	0.093 mm	0.0037 in
Rocker Arms – Rocker Arm Ratio	1.80:1	
Valve Springs – Free Length	58.8 mm	2.313 in
Valve Springs – Installed Height	49.75 mm	1.959 in
Valve Springs – Load – Closed	450 N at 49.75 mm	101 lb at 1.96 in
Valve Springs – Load – Open	1380 N at 34.75 mm	310 lb at 1.37 in

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Coolant Temperature Sensor Threads	Sealant	12346004	10953480
Cylinder Head Core Hole Plug	Threadlock	12345382	10953489
Cylinder Head Plug	Threadlock	12345382	10953489
Engine Block Coolant Drain Hole Plug Sealing Washer	Sealant	12346004	10953480
Engine Block Front Oil Gallery Plug	Threadlock	12345382	10953489
Engine Block Oil Gallery Plug Sealing Washers	Sealant	12346004	10953480
Engine Oil	5W-30 SAE Engine Oil	12345610	993193
Engine Oil	5W-30 Dexos1 Engine Oil	19293000	19386321
Engine Oil Pressure Sensor Threads	Sealant	12346004	10953480
Engine Oil Supplement	Fluorescent Dye	88862586	10953470
Exhaust Manifold Bolts	Threadlock	89021297	10953488
Flywheel/Flex Plate Bolts	Threadlock	12345382	10953489
Fuel Injection Fuel Rail Bolts	Threadlock	12345382	10953489
Ignition Coil Bracket-to-Valve Cover Studs	Threadlock	12345382	10953489
Ignition Coil-to-Bracket Bolts	Threadlock	12345382	10953489
Intake Manifold Bolts	Threadlock	12345382	10953489
Oil Pan Oil Gallery Plug Threads	Sealant	12346004	10953480
Oil Pan Surface at Front Cover and Rear Housing	Sealant	12378521	88901148
Thread Repair Component Cleaner	Cleaner	12346139	88901247
Thread Repair Component Cleaner	Cleaner	12377981	88901247
Thread Repair Cutting Oil	Lubricant	1052864	992881

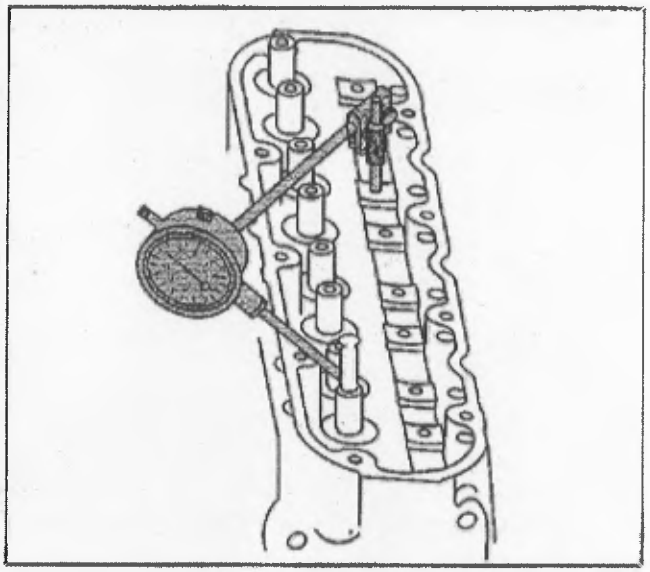
Valve Guide Reaming, and Valve and Seat Grinding (7.0L)

Special Tools

J 8001 Dial Indicator Set

For equivalent regional tools, refer to *Special Tools on page 9-1050*.

Valve Guide Reaming



65832

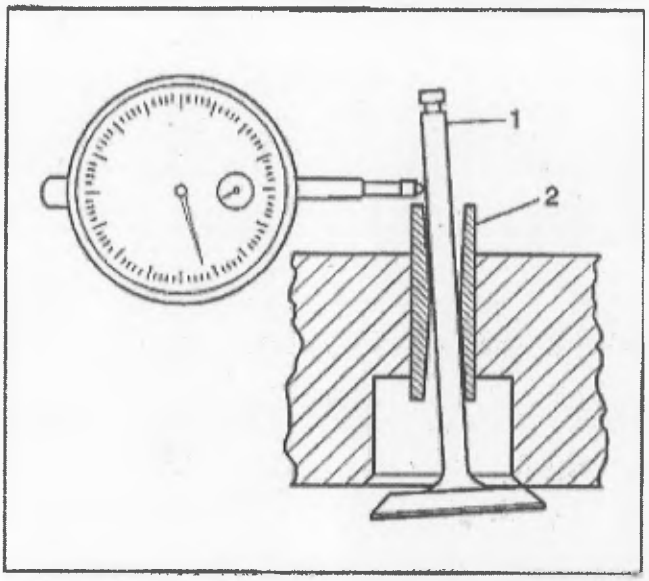
Caution: Do not clean titanium components with chlorinated solvents. Brake parts, and similar cleaning solvents, safety solvents, or refrigerant that contains chlorofluorocarbons (CFCs) should not be used. Using chlorinated solvents to clean titanium components can result in component damage, leading to stress corrosion cracking that may be undetected with normal visual inspection. Acceptable materials for cleaning titanium components include non-chlorinated solvents, alcohol, acetone, and methanol.

Caution: Excessive valve stem-to-guide clearance may cause a noisy valve train, premature valve stem oil seal wear, component damage, and/or excessive engine oil consumption.

Caution: Insufficient valve stem-to-guide clearance will result in noisy or sticking valves. Valves that are too tight may disturb engine smoothness or lead to component damage.

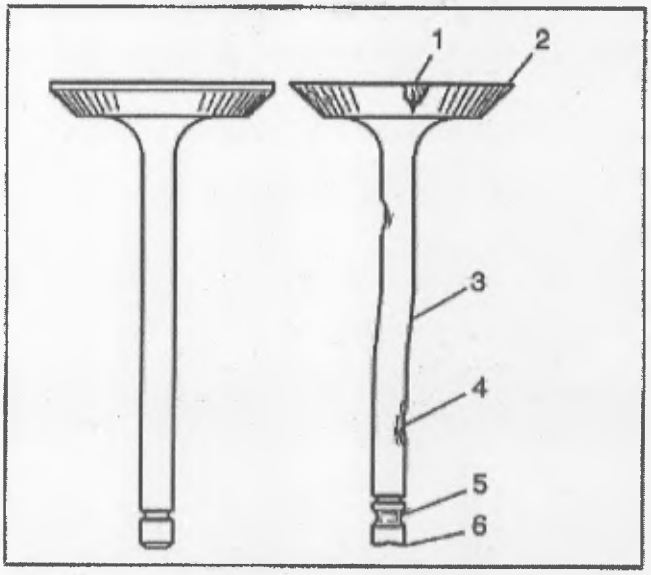
1. Using the *J 8001* dial indicator, measure the valve stem-to-guide clearance. Position the tip of the dial indicator at the top of the valve guide.

   Valve stem-to-guide clearance may also be obtained by using a micrometer to measure the valve stem diameter and a ball type measuring gauge to measure the guide bore.



156172

2. If the clearance measurement between the valve stem (1) and guide (2) is not within specification, the valve and/or the cylinder head must be replaced. Refer to *Engine Mechanical Specifications (6.2L LS3) on page 9-563* or *Engine Mechanical Specifications (6.2L LS9) on page 9-566* or *Engine Mechanical Specifications (7.0L) on page 9-569*.



156174

3. Inspect the valve stems for excessive scoring, wear, or warpage.
   - A valve stem that has excessive scoring (3 or 4) or wear (4 or 6) must be replaced.
   - If a valve guide is worn or has excessive stem-to-guide clearance, the cylinder head should be replaced.

Exhibit 4

LS7 valve guide news.

Hib Halverson
CF Senior Member
My Corvette Photos
Member Since: Oct 1999
Location: Goleta CA
CF 15 year member

LS7 valve guide news.

Last week I was in Michigan for a day of meetings with various engineers at the General Motors Powertrain Division. Two of the meetings were about GM's two new premium V6 engines, the LGW and the LGX. The third concerned the LS7 valve guide wear problem.

Present for the LS7 meeting on the afternoon of 24 March at GM Powertrain Headquarters in Pontiac, were: Jordan Lee, Chief Engineer and Program Manger for the Small-Block V8, John Rydzewski, Assistant Chief Engineer for Small-Block V8 Passenger Car Engines, Chris Cogan, Cylinder Head Design Release Engineer for the LT1, LT4 and LS7 and Yoon Lee, LS7 Design System Engineer. Also present was Tom Read, Director of Communications for GM Powertrain. In attendance for part of this meeting were representatives from GMPT's Inspection Department, from Zeiss U.S. and the GM entity which complies service information.

This meeting included a visit to the Inspection Department at GM Powertrain HQ where I observed a Coordinate Measuring Machine (CMM) session with the passenger side cylinder head which was removed from my engine in July of 2014 during a warranty replacement. A CMM captures measurements used to create an extremely precise, three-dimensional, digital model of an object, such as an LS7 head. The GMPT Inspection Department uses Zeiss "Prismo Navigator" CMMs which are accurate to two microns over a distance of 300-mm (.00008-in over one foot).

What I learned from LS7 Team at Powertrain will be incorporated into revisions to my series of LS7 articles which are posted on another web site. These revisions will take some time to produce. There is no posting date for them at this time.

There are some open issues remaining after this meeting and they will be explored via a follow-up exchange of emails I will be having with Tom Read and the LS7 Team in the next week or so.

At this point, I can reveal some news items which came out of that meeting. I'll cover them briefly, here, and will expand upon them, later, in my revisions to the LS7 article series.

1) "Wiggle Testing" at best is inaccurate and in many cases is completely unreliable. Observing one of my heads being measured by one of GM's Zeiss CMMs proved to me conclusively that even the complicated and careful procedure I covered in my Wiggle Test article produces data which is inaccurate and inconsistent such that, unless the clearance measured is significantly greater than the Service Limit of .0037-in., the measurements are useless for determining if a head needs repair or replacement due to valve guide wear.

2) It is possible that heads which had Wiggle Test results of more than .0024 (intake) or .0026 (exhaust) but less than .007-in. stem-to-guide clearances had actual clearances below GM's .0037-in Service Limit, regardless of how the Wiggle Test was done. That possibility becomes greater as Wiggle Test measurements get closer to .0037-in. Once they approach .005-in., guides

are likely in spec even though they Wiggle Test as bad.

3) Some, but not all, heads which failed "Wiggle Tests" and were repaired or replaced, either under warranty or not, actually did not have faulty valve guides and did not need replacement.

4) Wiggle Testing is "out" at GM. In early March, GM released to its dealers an update to ESI mandating a new procedure for measuring stem-to-guide clearance for warranty purposes in all high-performance engines. It requires a hole gauge to measure guides and a micrometer to measure valve stems or a valve guide bore gauge, such as a Sunnun P310, and must be done with the heads removed and disassembled.

5) The demise of Wiggle Testing as a way to determine if guides are worn was a result of the LS7 Engineering Team's review of the LS7 article series, three CMM inspections of the heads removed from my engine in July of 2014 along with the Team's need for more accurate information from the field about warranty replacements of LS7 heads. Additionally, the LS7 Team's review of selected content on the CF, on another web site which also has a C6 Z06 forum and on additional web sites besides those two, may have influenced the decision.

5) According to Jordan Lee, the "machining error" stated here on the CF by Chevrolet Customer Service in October of 2012, was a failure of the supplier to properly deploy statistical process controls and, as a result, the diameters of valve guides in some, but not all, heads made during that period were machined too large.

6) The "suspect period" for this machining error, previously stated here on the CF and on other web sites by Chevrolet Customer Service to be 2008 to Feb 2011, is not correct. According to Chris Cogan, and confirmed by Jordan Lee, the suspect period was July, 2008 to March, 2009.

7) Only LS7 heads are manufactured by Linamar. LS9 cylinder heads were never manufactured by Linamar. LS9 heads were made in GM's engine plant in Silao, Mexico. I am partially responsible for that long-standing piece of misinformation. I apologize for any confusion it has caused.

8) The LS7 is currently manufactured at the Performance Build Center in Bowling Green and will remain so until the 5th Gen Camaro Z28 goes out of production.

I may post additional information concerning my 24 March visit to GM Powertrain as conditions warrant.

Thanks to the LS7 Engineering Team along with Tom Read, GMPT Director of Communications, for the time and resources they devoted to my visit with them in Michigan last week. I'd also like to thank the LS7 Team for their willingness to show me all the information they had available at the time of the meeting and their willingness to consider sharing additional information going forward. Finally, I appreciate the LS7 Team's interest in working with me to get as much information on LS7 valve guides as possible into the public domain.

Hib Halverson
technical writer

REPLY

Geared
CF Senior Member
Lifetime Gold Member
LO BOOST
My Corvette Photos
Member Since: Sep 2009
Location: Jupiter Florida

thanks Hib - good info, as always. Is there a marking on the car to show when your build date occured?

Last edited by Geared; 03-29-2015 at 02:53 AM.

Exhibit 5

Ask Tadge Post your questions here for Corvette's Chief Engineer Tadge Juechter and then discuss the questions and his answers.

[ANSWERED] C6 Z06 Question for Tadge Juechter

02-18-2015, 05:35 PM #1

jvp
Tech Contributor
"Ask Tadge" Facilitator
Lifetime Gold Member

Member Since: Mar 1999
Posts: 7,109
Location: Oak Hill VA
CF 15 year member
Thanks: 13
Thanked 43 Times in 22 Posts

[ANSWERED] C6 Z06 Question for Tadge Juechter

Original question is here.

Quote:

> **AZDANZ06 asked:**
>
> I am writing to you on behalf of all C6 Z06 Owners here at the Corvette Forum. There has been way too many C6 Z06 owners that have suffered LS7 engine failures due to dropped valves. GM claims that there was a manufacturing problem that was subsequently corrected, yet engines and off the shelf replacement cylinder heads produced after that date are also failing at an alarming rate. Loyal owners of even extremely low mileage vehicles are continuing to measure valve-to-guide clearances far beyond service limits and have had their heads reworked at a significant cost. This is evidenced by a cross section of Corvette Forum Members who have had their valve-to-guide clearances measured, 88% of the 208 member cars checked have had out of spec valve guides on C6 Z06's built from 2006 through 2013. With the apparent widespread incidence of excessive valve guide wear among LS7's, does GM know anything regarding the root cause of the issue and/or potential mitigation actions in order for LS7 owners to regain confidence in the platform and to retain loyal GM Customers?

Quote:

> **Tadge answered:**
>
> First of all, let me explain why it is taking longer to answer this question than the usual week. It is my intention to use this part of the forum to get the best, most accurate information to the Corvette community I can. Some questions, like this one, require a number of internal experts be consulted for a complete answer and so it takes longer for everyone to weigh in.

I purchased a 2006 Z06 myself. It was my pride and joy. I sold it a couple years ago in anticipation of buying a C7. I sold it to Damian Zink, who works in Bowling Green and is continuing to use it on road and track. I'm very happy it is still in the Corvette team family. I tell you this to counter a prevailing assumption on the forum and elsewhere that we on the Corvette team only care about selling new cars. Nothing could be farther from the truth. Many of us are customers ourselves, our friends and families own a lot of cars from many generations and we have long term relationships with many of our customers. The long term ownership experience is very important to us – even well beyond the warranty period.

Engine reliability is a huge focus for us and we have been monitoring the LS7 since it was introduced. We will continue to do so for the foreseeable future. I can promise any learning we have will be incorporated into our future designs and we will make every attempt to treat customers fairly.

The description of the LS7 experience below is being provided by my counterpart on the engine side, **Jordan Lee, the Small block Chief Engineer:**

The LS7 engine is a high performance engine, our highest output naturally aspirated engine in production today. It achieves its power output by incorporating very large titanium intake valves and a very aggressive camshaft profile. As a result, the LS7 does exhibit more valve train noise than our other Small Block variants. The large valves and the rapid open and closing events of the valves will result in valve train tick. All LS7 engines exhibit this valve train noise. The cylinder head is also quite unique compared to our other Small Block variants. The head is CNC machined, including the ports, by one of our reputable suppliers. They fully machine the cylinder head, including the valve guide ID, then they assemble the head with valves and springs and deliver the fully assembled cylinder head to our engine assembly plant.

Like all manufacturers, we have specifications and tolerances for all critical dimensions including the valve guide ID. Unfortunately for a 9 month period of time, from July 2008 to March 2009 we have evidence that some cylinder heads (a small percentage of the total population) were delivered to our assembly plant with valve guide ID's that were out of specification and were over-sized. This resulted in more valve train noise than is normal. Once the "out of specification" condition of the valve guide ID was identified, we worked with our dealerships to repair customer cars when we identified engines that had out of specification cylinder heads. For the 2009 MY we replaced a total of 65 cylinder heads (Z06 production was 1654 cars and most heads were replaced in pairs so roughly 33 engines). Due to this valve guide ID issue, our cylinder head supplier implemented more rigorous inspections and quality check procedures to ensure they made and shipped only cylinder heads that are within specification. After the time period in question the number of customer complaints dropped significantly.

One issue we struggled with was defining an inspection procedure that the dealership can perform to determine if the guides are out of spec. The only accurate method to measure valve guide ID is to remove the head from the engine, remove the valves, and use a dial-bore gauge or CMM (Coordinate Measuring Machine) to accurately measure the ID. This method requires a lot of disassembly of the engine and many customers don't want the heads removed for inspection. As a result, we developed another technique fondly known as the "wiggle method" where the valve spring is removed and the valve is wiggled in the guide, and the distance is measured with a dial indicator and then using trigonometry the clearance is calculated. Unfortunately this method is not very accurate and has a tendency to indicate a larger guide internal diameter than it actually is. We know this for a fact because we tested the method by using the wiggle method on a few cylinder heads and then disassembled the heads and measured them on a CMM (Coordinate Measuring Machine) for an accurate measurement and then compared the results between the two techniques. We're currently investigating other techniques to get a better

measurement without disassembling the cylinder heads and will instruct our dealerships accordingly if we are able to develop one. To date we have not been successful in developing an accurate non-intrusive technique. Since there is significant error in the wiggle method we are contemplating whether we should continue with this method.

Regarding valve guide material, the LS7 uses a premium guide material, Federal Mogul PMF10 which is oil impregnated and has a high moly content. We look at our warranty claim data almost daily looking for trends and problems and do act as quickly as possible to make sure our customers are taken care of and we fix any known problems ASAP. Based on the data we've amassed to date, it still appears that our suspect period is July 2008 to March 2009. Worth noting is that most of the heads made in this time frame are indeed within specification. We stand behind our products and our customers, and will repair under warranty any cylinder heads whose guides are indeed out of specification within the Powertrain warranty period.

02-18-2015, 05:40 PM #2

pewter99
Auctioneer Administrator
Organizer St. Jude Fundraiser
Tampa Regional Coordinator
CI 4-5-6-7-8 Veteran
I believe in the Beer Fairy
Gold Member

The original Cantina... CABO SAN LUCAS MEXICO

Member Since: Dec 1999
Posts: 150,746
CF 15 year member
10 YEAR DONOR
Thanks: 4
Thanked 60 Times in 36 Posts

cliffs: in warranty OK....out of warranty on your own

and this statement is in conflict with previous statement about heads being fixed after 2011

also of note doesn't address the recently purchased heads that were out of spec...

Last edited by pewter99; 02-18-2015 at 05:46 PM.

02-18-2015, 05:45 PM #3

Undy
CF Senior Member

Just about what I expected... sad.

Exhibit 6

Powertrain warranty period.

Tadge added: 02/23/2015

Jordan and I are very disheartened at the response to our answer on the LS7. I made the point that we care a great deal about the long term ownership experience for our customers, but few on this thread of the Forum seem to believe it. Of course we have read the testimony of the participants and want to continue the dialog assuming it can be done in a constructive way.

Some of the posts imply that having our cylinder head supplier inspect cylinder head valve guide inner diameter dimensions is not evidence of "good process control", it actually is when dealing with low volume production. Inspecting 100% of the cylinder heads manufactured does provide assurance that the parts are indeed within specification. The supplier doesn't' want to scrap a lot of heads, so they will also implement excellent process control to assure they are consistently making good parts, and the 100% inspection is final assurance all is well before shipping parts.

Most troubling to us is the massive discrepancy between what our internal data sources are telling us and the evidence being discussed on the thread. We have our warranty data and detailed break down and technical analysis of parts returned after warranty replacement. We also have the process control data from our head supplier - This includes very fine measurements of valve guide with high quality instrumentation. We also have data on wear rates from measuring new and fully tested engines(Including fairly recent data testing the Camaro Z/28) Our data show that the number of engines in the field with out of spec guides should be very small. Although it is hard to tell exactly from the claims on the thread, it appears that most of the measurements proving the valve guides are oversized come from aftermarket performance shops who make a living from repairing, reworking and tuning cylinder heads. It appears there is something different about the way they are measuring vs the way we are doing it. So our next step to try to find the truth is to contact several of the shops mentioned in the responses and consult with them on how their work is being performed. There is no doubt some of them are excellent facilities so maybe we can learn something from each other.

Exhibit 7

http://www.corvetteforum.com/forums/c6-z06-discussion/3121662-gm-response-to-ls7-valve-guide-issue-summary-confirmed.html

Quote:

Originally Posted by **Chevy Cust Svc**

Hello all,

LS7 Valve guide issue summary:
• Affects a small, number of '08, 09 '10 and '11 Z06's
• GM discovered the condition through our cylinder head warranty data involving a very small percentage of our vehicles.
• Through inspection of returned heads, it was determined that a machining error in the valve guide had occurred at our head supplier.
• The quality issue has been contained as of Feb 2011 with 100% inspection of all heads.
• The most common customer complaint has been excessive valve train noise.
However if the condition is not addressed, it could result in engine failure. To date, where this condition has been observed, it has occurred early in the vehicle life.
What customers need to know: They should drive and enjoy their vehicles without fear. If their car demonstrates this condition, they are likely to hear unusual valvetrain noise first. If you have a concern regarding this issue on your personal vehicle feel free to contact me through private message on this forum and we will work to assist in resolving your concern. Feel free to contact me through Socialmedia@gm.com please put attention Evan in the subject. As always, vehicles that have modifications to the powertrain or the calibrations, are no longer covered by GM's warranty.

Sincerely,
Evan, Chevrolet Customer ***Service***

Exhibit 8

INFORMATION

Bulletin No.: 13-06-01-001

Date: January 14, 2013

Subject: Information on Customer Questions About Valve Guide Wear
Models:
2006-2013 Chevrolet Corvette 427, Corvette Z06
Equipped with 7.0L V8 Engine (RPO LS7)

Customer Concern

Some owners of Corvettes equipped with the LS7 7.0L V8 engine may ask your dealership to check their vehicle for valve guide wear because of information that has been distributed on the internet, primarily at Corvette enthusiast sites. Due to these postings, some customers that have not had an issue may ask to have their vehicle checked. If a customer presents their vehicle and requests the valve guides be checked, the following information may be helpful to you and alleviate any concern for your customer.

Valve Guide Wear / Noise Concerns

To address any concern the customer may have, listen to the customer's request and ask the following questions to differentiate if the customer has experienced a correctable engine concern or has anxiety over information they may have read.
Important
It is important to investigate all concerns and relay good factual information to your customer. If a customer indicates a concern about valve guide wear, it is possible they may have a valid unrelated engine issue, and do not know how to express the actual concern.

1. Have you experienced any concerns or difficulties that would indicate an engine problem?
2. Is the Check Engine Light ON? Does the vehicle exhibit any starting/running concerns?
3. If the concern is noise related, ask for a description of the type of noise heard?

Once the information is collected, and the nature of the customers concerns are known, here are some guidelines for appropriate actions:

- For any driveability, starting, running or found DTC code issues, if the car is under the respective warranty period, repair the vehicle following normal diagnostics as outlined in the Electronic Service Information (SI). If the vehicle is out of the warranty period, explain the available options for the customer.
- If the customer indicated a concern with engine noise, warm the vehicle to operating temperature and compare it to similar vehicles. If the vehicle does not exhibit unusual noises or malfunctions, the customer should be told there is nothing to indicate the need to disassemble the engine to determine valve guide wear. The LS7 is a high performance motor and as such is built with an emphasis on power while retaining the lowest possible noise and vibration characteristics. Some valve train noise may be evident, which is a by product of the performance nature of this engine. General Motors has reviewed paid warranty claims for valve and head replacement for the Corvette LS7 and the numbers of incidents are very low with no indication of an excessive wear issue.
- If the customer's sole concern is based on information collected over the internet, with no verifiable symptom, and the customer insists the engine be disassembled and verified, it should be explained to the customer that any charges for the inspection would be at the customers expense.Valve guides are an internal engine component subject to wear over the life of the vehicle. If there is excessive wear (beyond the indicated service limit) after the investigation is completed, GM will cover the inspection and repair expense for vehicles covered under the Powertrain Limited warranty.

Aftermarket Equipment and Valve Guide Wear

The use of performance engine modifications has been found to accelerate valve guide wear. Replacement aftermarket mechanical parts, or software calibrations, may adversely affect the wear of these and other components. Any modification to the engine of GM vehicles voids the powertrain coverage portion of the vehicle warranty. For additional information on GM policies regarding aftermarket equipment and calibrations, please refer to the GM Service Policy & Procedures Manual, article 1.4.14 (Voided Warranties and Branded Titles) and article 1.2.2.12 (Non-GM Parts & Equipment and Original Equipment Alterations), along with the latest versions of Corporate Bulletin numbers 09-00-89-016 and 09-06-04-026 for additional information.

Exhibit 9

The "Out of Spec" Guide Wear Registry

12-06-2013, 05:18 PM #1

ctsv510
CF Senior Member

Member Since: Sep 2008
Posts: 682
Thanks: 0
Thanked 0 Times in 0 Posts

The "Out of Spec" Guide Wear Registry

This thread will be a "sister" thread to "The "In Spec" guide wear registry."

The purpose is to get a grasp of how many guide wear test results are coming back with out of spec guides and from which years.

If you have inspected your guides and they have come back **out of spec** based on the 0.0037" service limit (that means you have at least one guide measuring 0.0037" or more), please reply with the year of your Z06, any mods and the miles at inspection. You can also attach a spec sheet of the measurements if you have one and cite who did the inspection. Hopefully we can use this data to get a better idea of the percentage of problems out there.

If you are looking to find a shop that can perform a wiggle test on your heads, see the list of Vendors below or check the **Crowdsourced Interactive Map of Wiggle Testers**

This is not a thread to debate the valve drop issues, or how to fix it. This is not a thread for cars who have in spec guides. This is not a thread for drama. Please try to keep it as clean as possible and on topic.

The results will be grouped by year and then by member name. There is now a separate list to record any out of spec bronze guide heads. Many of the members on this list originally posted in THIS THREAD.

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VENDOR POSTS on Out Of Spec Guides:

American Heritage Performance: LINK
.....Wiggle Test DIY: LINK

East Coast Supercharging: LINK

HorsePowerAddicts: LINK

Vengeance Racing: LINK

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THE OUT OF SPEC LIST: (stock powdered metal guides)

2006: 51 ..... 6272 produced (20.5% of production)
2007: 48 ..... 8159 produced (26.7% of production)
2008: 51 ..... 7731 produced (25.3% of production)
2009: 30 ..... 3461 produced (11.3% of production)
2010: 5 ..... 518 produced (1.70% of production)
2011: 5 ..... 904 produced (3.00% of production)
2012: 2 ..... 478 produced (1.60% of production)
2013: 1 ..... 471 produced (1.50% of production)
427: 2 ..... 2552 produced (8.40% of production)

TOTAL: 195 (As of 01/27/15, ~89% of those tested and reported to the forum are **out of spec**)

----------[2006]----------

'06 Quicksilver Z06: 2006 Z06. 20,000 miles link
'06 Quicksilver Z06: 2006 Z06. 31,000 miles link heads purchased used
1981turbota: 2006 Z06. 25,000 miles link
1988Bullitt: 2006 Z06. 34,000 miles link
2006FRCZ19: 2006 Z06. 55,000 miles link
240sx2jz: 2006 Z06. 25,000 miles link
2K6Z06: 2006 Z06. 9,200 miles link
610slvZ: 2006 Z06. 27,000 miles link
adamgl: 2006 Z06. 23,500 miles link heads, cam headers, stock guides out of spec with solid valves
Al Green: 2006 Z06. 20,000 miles link
anth115: 2006 Z06. 23,000 miles link
biggfroggy: 2006 Z06. 13,000 miles link
BMurphy: 2006 Z06. 47,000 miles link
Bonnetts02Vette: 2006 Z06. 11,000 miles link
BoostedEBZ06: 2006 Z06. 35,000 miles link
bright1984: 2006 Z06. 22,000 miles link tune, cai, headers, exhaust
BrokerDon: 2006 Z06. 50,000 miles link
c6 zeee06: 2006 Z06. 15,000 miles link
caker: 2006 Z06. 18,000 miles link car raced "hard"
clogan: 2006 Z06. 39,100 miles link
ctsv510: 2006 Z06. 17,400 miles link link2
D-Rod: 2006 Z06. 11,000 miles link blower, meth, upgraded rockers, kooks
dmuellenberg: 2006 Z06. 99,500 miles link
double06: 2006 Z06. 10,000 miles link
erichg1000: 2006 Z06. 30,000 miles link
FRDnemesis: 2006 Z06. 22,000 miles link exhaust, intake, tune
GeneSch: 2006 Z06. 10,300 miles link intake and exhaust guides out of spec
H82BFST: 2006 Z06. 19,000 miles link
Homeboy77: 2006 Z06. 36,000 miles link
Is2scooby: 2006 Z06. 17,000 miles link
Joe in Az: 2006 Z06. 16,000 miles link tune, cai, headers
Josh B.: 2006 Z06. 37,000 miles link
Katech_Jason: 2006 Z06. 23,000 miles link
Katech SN#71:(non member) 2006 Z06. unknown miles link
Leo the Lion: 2006 Z06. 29,641 miles link
mariofromnewyork: 2006 Z06. 12,000 miles link
MIGHTYMOUSE: 2006 Z06. 135,000 miles link
mistermog: 2006 Z06. 11,000 miles link intake
musicmankeb: 2006 Z06. 16,000 miles link
nitrojunky: 2006 Z06. 39,000 miles link
"NO SHOW": 2006 Z06. 14,000 miles link
nuclearnick: 2006 Z06. 60,000 miles link cam
NV MY C5: 2006 Z06. 31,000 miles link
Peter Clark: 2006 Z06. 20,000 miles link
richy rich: 2006 Z06. 16,000 miles link
TRSCobra: 2006 Z06. 27,000 miles link
Turbosixx: 2006 Z06. 20,000 miles link
turbotank: 2006 Z06. 69,000 miles link
Unreal: 2006 Z06. 18,000 miles link inatke and exhaust valves out of spec
Z06-HEC*: 2006 Z06. 40,000 miles link

Zogman: 2006 Z06. 55,000 miles link

----------[2007]----------

021z: 2007 Z06. 49,000 miles link
2k Cobra: 2007 Z06. 43,000 miles link
blackc6z: 2007 Z06. 29,000 miles link cam, solid stainless exh valves, stock guides. no wear at 21k miles before cam/valve install
C5Lion: 2007 Z06. unknown miles link
C6Zhopeful393: 2007 Z06. unknown miles link
chris2000: 2007 Z06. 12,400 miles link
crf538: 2007 Z06. 18,000 miles link
Darius: 2007 Z06. 24,000 miles link dropped valve in original motor at 36k miles, worn valve guides in new replacement motor
Fifedogg: 2007 Z06. 26,000 miles link link2 cam, stock guides, solid exh valves
fly a Z06: 2007 Z06. 65,000 miles link tuned, k&n
GMuffley: 2007 Z06. 20,000 miles link
harrydirty: 2007 Z06. 13,700 miles link
hoefi: 2007 Z06. 11,000 miles link blown motor
ITCH: 2007 Z06. 15,144 miles link intake & exhaust guides out of spec
jedblanks: 2007 Z06. 16,000 miles link
jeffreystar: 2007 Z06. unknown miles link headers, intake
john_g_46: 2007 Z06. 88,000 miles link
Joshua Detwiler: 2007 Z06. unknown miles link
JRRSA: 2007 Z06. 8,000 miles link
Katech SN#70:(non member) 2007 Z06. 35,000 miles link
Kouasupra: 2007 Z06. 34,000 miles link
lane_change: 2007 Z06. 32,000 miles link cam
MarkC: 2007 Z06. 21,000 miles link
meanjoe: 2007 Z06. 5,000 miles link
NavyAirTraffic: 2007 Z06. 19,100 miles link
QVG: 2007 Z06. 18,863 miles link
parsonsj: 2007 Z06. 7,500 miles link
PeteZ06: 2007 Z06. unknown miles link
ratomicZ06: 2007 Z06. 14,000 miles link
rio95: 2007 Z06. 15,000 miles link
rnoack: 2007 Z06. unknown miles link
rockinSeat: 2007 Z06. 22,000 miles link
ROUTE 66: 2007 Z06. 25,000 miles link
Spiffshady: 2007 Z06. 41,000 miles link
stew1100: 2007 Z06. 23,000 miles link
toroz06: 2007 Z06. 9,000 miles link
triblk6spd: 2007 Z06. 20,000 miles link
troy6166: 2007 Z06. 15,000 miles link cam, solid stainless exh valves, stock guides. no wear at 7k miles before cam/valve install
Uncledibble: 2007 Z06. 84,500 miles link
veilseven: 2007 Z06. 38,000 miles link
wagoetzmann: 2007 Z06. 24,139 miles link intake valve out based on X/2 - .0005" calc
Woz Z06: 2007 Z06. 16,000 miles link
Yankee15: 2007 Z06. ~20,000 link
youzzi714: 2007 Z06. unknown miles link
Z06guy07: 2007 Z06. unknown miles link
Z06pete: 2007 Z06. 13,000 miles link
Zoxxo: 2007 Z06. 71,000 miles link
zuli: 2007 Z06. 27,000 miles link

----------[2008]----------

08VRZ06: 2008 Z06. 24,000 miles link
1fastC3: 2008 Z06. 38,000 miles link
4wheels: 2008 Z06. 31,000 miles link
80atez: 2008 Z06. 25,000 miles link
AZDANZ06: 2008 Z06. 27,000 miles link
banipal19: 2008 Z06. 9,000 miles link link2
bigdog1250: 2008 Z06. 31,000 miles link
big_mike_eu: 2008 Z06. 15,500 miles link
BignastyBRP: 2008 Z06. 38,000 miles link
bktmbill: 2008 Z06. 7,700 miles link
blkbrd69: 2008 Z06. 20,000 miles link
BosnianZ06: 2008 Z06. 24,000 miles link
bp2826: 2008 Z06. 52,000 miles link
Buddy A: 2008 Z06. 12,500 miles link
ClarksZ06: 2008 Z06. 9,000 miles link headers, cam, tune
conner.mcgrath: 2008 Z06. 47,000 miles link
Cozmo: 2008 Z06. 26,500 miles link
DaOtherOne: 2008 Z06. 35,000 miles link katech stage 1
ericszr1: 2008 Z06. 25,000 miles link
flyloeZ06: 2008 Z06. unknown miles link
Glenm27: 2008 Z06. 22,000 miles link tracked
HMFIC: 2008 Z06. unknown miles link
hot-toy: 2008 Z06. 13,500 miles link
JCox23: 2008 Z06. 10,500 miles link ferrea stainless valves (stock

guides), cam, ported heads, intake, tb, headers
juanvaldez: 2008 Z06. 48,000 miles link
jwebsta32: 2008 Z06. 30,000 miles link
JP426: 2008 Z06. 17,736 miles link
Kneel 8250: 2008 Z06. 41,000 miles link Previous measurement at 34k miles showed in spec
Les: 2008 Z06. 26,900 miles link
londonk: 2008 Z06. 8,000 miles link
Mark Wade: 2008 Z06. 8,000 miles link
MHCvette: 2008 Z06. 12,567 miles link link2
Mike Hoppe: 2008 Z06. 11,000 miles link stock, intake and exhaust guides both out of spec
moose.b3: 2008 Z06. 40,000 miles link
mygiftmycurse: 2008 Z06. 22,800 miles link
MyLastCorvette: 2008 Z06. 9,000 miles link
Oskee: 2008 Z06. 10,000 miles link
property1: 2008 Z06. 18,000 miles video link link2
psp6158: 2008 Z06. 5,000 miles link
rapidroy: 2008 Z06. 18,000 miles link
SONKIST: 2008 Z06. 10,000 miles link
starr1: 2008 Z06. 17,000 miles link
timafey: 2008 Z06. 20,000 miles link
Titan C6Z: 2008 Z06. 13,900 miles link
vetteuphoria: 2008 Z06. 19,000 miles link
wolf8218: 2008 Z06. 23,000 miles link
yagrmiestr: 2008 Z06. 21,000 miles link
yrkZ06: 2008 Z06. 14,000 miles link
Z.06: 2008 Z06. 14,000 miles link
Zeaux6504: 2008 Z06. 20,000 miles link intake and exhaust out of spec
zman62: 2008 Z06. 4,000 miles link

----------[2009]----------

06HWRX: 2009 Z06. 17,500 miles link
1badtantrum: 2009 Z06. 14,300 miles link
71'AirStrike: 2009 Z06. 36,000 miles link
beden1: 2009 Z06. 6,400 miles link
chevybob: 2009 Z06. 10,000 miles link
CliffyDeuce: 2009 Z06. 19,000 miles link
cruzin2: 2009 Z06. 9,000 miles link
Dogged: 2009 Z06. 18,000 miles link
DON T.: 2009 Z06. 17,000 miles link
erick_e: 2009 Z06. 36,238 miles link
EWK: 2009 Z06. 7,666 miles link link2
EX1: 2009 Z06. 16,000 miles link link2 cam
jbs02somws6: 2009 Z06. 24,000 miles link cal
lawman34203: 2009 Z06. unknown miles link
LawrenceFromTorrence: 2009 Z06. 20,000 miles link
Maligator: 2009 Z06. 6,900 miles link
Mar48: 2009 Z06. 43,000 miles link
Mark200X: 2009 Z06. 50,000 miles link
Maxrr: 2009 Z06. 19,000 miles link
MHCvette: 2009 Z06. 30,642 miles link link2
morris: 2009 Z06. 32,000 miles link cam + track time
MTDave: 2009 Z06. 34,000 miles link
MyLs1Hauls: 2009 Z06. 10,000 miles link
nzk: 2009 Z06. 23,000 miles link
reasonable suspicion: 2009 Z06. 7,500 miles link link2
RegnaR: 2009 Z06. 22,000 miles link
rocksts: 2009 Z06. 19,000 miles link
stealth1281: 2009 Z06. 19,000 miles link
Wass: 2009 Z06. 45,000 miles link
winjr: 2009 Z06. 16,000 miles link link2 link3

----------[2010]----------

Gearpuller: 2010 Z06. 21,500 miles link
indyspeed: 2010 Z06. 5,743 miles link intake valve guides out of spec
oversteer: 2010 Z06. 7,500 miles link
roadandtrack: 2010 Z06. 7,500 miles link
Smkn 07: 2010 Z06. 34,000 miles link

----------[2011]----------

billyjo: 2011 Z06. 4,500 miles link
Dirty Howie: (2011 heads Z06). 32,000 miles link 2011 replacement motor
Minkster: 2011 Z06. 28,080 miles link
phipp85: 2011 Z06. 27,000 miles link intake valves guides out of spec
Z06_1: 2011 Z06. 16,000 miles link intake valve guides out of spec

----------[2012]----------

CGZ06: (2012 motor Z06). 400 miles link 2012 built replacement motor put in his '09 after original dropped valve
Hib Halverson: 2012 Z06. 15,000 miles link

----------[2013]----------

subfloor@centurytrans: 2013 Z06. <5,000 miles link supporting vendor, removed heads from 2013 Z06 with out of spec intake guides

----------[427]----------

garye: 2013 427 Vert. 4,000 miles link intake guides out of spec
Z06_1: 2013 427 Vert. 4,000 miles link intake guides out of spec

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OUT OF SPEC LIST: (aftermarket bronze guides)

***3 Reported**

American Heritage: unknown owner, year, mileage link link2 owner was told by previous owner heads were done by WCCH 20k miles prior
American Heritage: unknown owner, year, 15k miles on heads link link2 owner was told by previous owner that heads were done by WCCH 5k miles prior to sale. Car has unknown aftermaket cam
andy82: 2007 Z06. 7,000 miles on new PRC heads link

OUT OF SPEC LIST: (crate motor / LS7 swap in other vehicles)

***2 Reported**

BillY2KFRC: 2008 built crate LS7. 23,000 miles link installed in C5 Z06
C5 LS7: 2006 built crate LS7. 35,000 miles installed in C5

0:0:0:0 Sekindo

Last edited by ctsv510; 03-21-2015 at 11:36 PM.

REPLY

12-06-2013, 05:42 PM #2

propain
CF Senior Member
★★★★★
St. Jude Donor '14

Member Since: Mar 2012
Posts: 3,311
Thanks: 2
Thanked 2 Times in 2 Posts

Nicely done. I look forward to comparing results.

I believe Quick's year is a 2006 based on his user name.